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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/611,562	07/07/2000	Masahiro Kobayashi	JCLA6244	8123

7590

04/08/2003

JIAWEI HUANG
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IRVINE, CA 92618

EXAMINER

DUONG, THO V

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 04/08/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/611,562

Applicant(s)

KOBAYASHI ET AL.

Examiner

Tho v Duong

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed subject matter of "N = the number of slit arrays/the number of fin units" renders the scope of the claim indefinite since it is not clear if N is the total number of slit array per a fin unit or per all the fin units of the heat transfer fin. Furthermore, applicant does not disclose that how many fin units are in the structure nor the number of slit arrays on any fin unit.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kang et al. (US 5,755,281). Kang discloses (figure 10) a heat exchanger comprising a heat transfer coil (30) penetrate through a row of multiple plate-shape heat transfer fins (20); air (A) is supplied orthogonally to the heat transfer coil; the heat transfer fin is partitioned in at least one fin unit in which arrays of slits are arranged in a row. As regarding claim 1, the formula:

$W_s \geq (1 - 0.1(6-N))W_f/(2N+1)$, can be rearranged as

$$W_s/W_f \geq (1 - 0.1(6 - N)) / (2N + 1)$$

Basing on the geometrical relationship of figure 10, the ratio between the width of the slit to the width of the fin is $W_s/W_f = 0.067$. Therefore, as long as N or number of slit array on the fin is greater than 8.2, the formula is satisfied. Kang discloses (figure 9) that the fin has more than 9 slit arrays. Therefore, the formula is satisfied. Also basing on the geometrical relationship of figure 10, the ratio between the width of the slit and spacing between two slits to the diameter of the tube (30) are the same, which is approximately 0.22. This ratio is within the claimed range 0.17-0.29 and 0.18-0.5 of the invention. With regarding applicant's argument that it is improper to use proportion of the elements in the drawing, has been very carefully considered but is not deemed to be persuasive. It has been stated in rule 37 CFR 1.84. (k) (3) of the MPEP that "Elements of the same view must be in proportion to each other, unless a difference in proportion is indispensable for the clarity of the view". The examiner has taken the geometrical relationship of the W_s , W_f and spacing between two slits from the same view of figure 10. Therefore, the measured ratio is considered to be readable on the claimed range.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang in view of Park et al. (US 5,975,199). Kang discloses substantially all of the claimed invention as

Art Unit: 3743

discussed above except for the limitation that the tube has a diameter of about 7 mm. Park discloses (figure 1 and column 4, line 66- column 5, line 4) a heat exchanger that has coil (2) with a diameter of 7mm been used in industrial application to make a heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Parker's teaching in Kang's heat exchanger to make the heat exchanger.

Conclusion

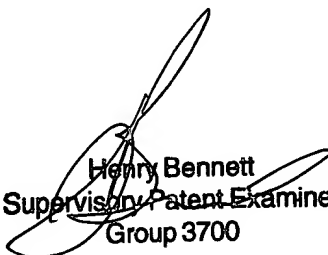
Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7764.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0861.

Tho Duong

March 28, 2003


Henry Bennett
Supervisory Patent Examiner
Group 3700